CONTENTS

Complete contents of: Ion Chemistry. A Collection of Invited Papers Dedicated to Professor Eldon E. Ferguson in Honour of his Contributions to Ion Physics and Chemistry.

PART A

Contents of Volume 80 (the first of two volumes dedicated to Professor E.E. Ferguson)

Eldon Earl Ferguson vii

Polyatomic ions: bond energies, most stable isometric form and low excited states
D.R. Bates (Belfast, N. Ireland) 1

Rotational effects in complex-forming bimolecular reactions: application to the reaction $CH_4 + O_2^+$
J. Troe (Göttingen, F.R.G.) 17

Reaction rates of electrons with dipolar molecules
D.C. Clary and J.P. Henshaw (Cambridge, Gt. Britain) 31

Vibrational overlap integrals between the neutral and ion states of NH_3 and ND_3: application to the vibrational dependence of the $NH_3^+(v_2) + NH_3(0)$ symmetric charge transfer reaction
T. Ebata, W.E. Conaway and R.N. Zare (Stanford, CA, U.S.A.) 51

Bimodal rotational distributions of N_2^+ produced in the thermal energy Penning ionization of N_2 by $Ne^*(^3P_2)$
D.M. Sonnenfroh and S.R. Leone (Boulder, CO, U.S.A.) 63

Electron spectroscopy of CH_2S^-
S. Moran and G.B. Ellison (Boulder, CO, U.S.A.) 83

Radiative relaxation of vibrationally excited ions
G. Mauclaire, M. Heninger, S. Fenistein, J. Wronka and R. Marx (Orsay, France) 99

The role of vibrational excitation of molecular ions in collisions with neutrals
W. Lindinger (Innsbruck, Austria) 115

The mechanism and product energy disposal in the reaction of $C^+(^2P_u)$ with $O_2(X^3\Sigma_g^-)$
M. Rincon, J. Pearson and M.T. Bowers (Santa Barbara, CA, U.S.A.) 133

Translational energy dependence of $O^+(^4S) + H_2(D_2,HD) \rightarrow OH^+(OD^+) + H(D)$ from thermal energies to 30 eV c.m.
J.D. Burley, K.M. Ervin and P.B. Armentrout (Berkeley, CA, U.S.A.) 153

Crossed-beam investigation of the single-electron charge transfer process $Kr^{2+} + He \rightarrow Kr^+ + He^+$ at sub-eV collision energies
B. Friedrich, J. Vančura and Z. Herman (Prague, Czechoslovakia) 177

State-selected ion/molecule reactions by the TESICO technique. XIV. Separation of two microscopic reaction mechanisms in the reaction $CH_3Cl^+ + CH_3Cl \rightarrow CH_4Cl^+ + CH_2Cl$
S. Suzuki and I. Koyano (Okazaki, Japan) 187

Collision-induced dissociation and charge reversal experiments on H_3O^- and NH_4^-
W. de Lange and N.M.M. Nibbering (Amsterdam, The Netherlands) 201

Dynamics of reactive and non-reactive processes competing in Cl^-, Br^-, I^- collision with H_2
M. Durup-Ferguson, J.A. Fayeton, J.C. Brenot and M. Barat (Orsay, France) 211

The effects of isotopic substitution on abstraction reactions of ammonia ions with hydrogen at very low temperatures
S.E. Barlow and G.H. Dunn (Boulder, CO, U.S.A.) 227

CRESU studies of ion/molecule reactions
B.R. Rowe and J.B. Marquette (Meudon, France) 239

The reactivity of HOC^+ and the proton affinity of CO at O
C.G. Freeman, J.S. Knight, J.G. Love and M.J. McEwan (Christchurch, New Zealand) 255

Author Index for Volumes 80 and 81 273

Subject Index for Volumes 80 and 81 274

PART B

Contents of Volume 81 (the second of two volumes dedicated to Professor E.E. Ferguson)

Eldon Earl Ferguson vii

Some problems in interstellar chemistry
A. Dalgarno (Cambridge, MA, U.S.A.) 1

Stratospheric positive ion composition measurements and acetonitrile detection: a consistent picture?
E. Arijs, D. Nevejans and J. Ingels (Brussels, Belgium) 15

Stratospheric trace gas detection using a new balloon-borne ACIMS method
F. Arnold and G. Knop (Heidelberg, F.R.G.) 33

Mobilities of several mass-identified positive and negative ions in air
H. Böhringer, D.W. Fahey, W. Lindinger, F. Howorka, F.C. Fehsenfeld and D.L. Albritton (Boulder, CO, U.S.A.) 45

Microwave afterglow measurements of the dissociative recombination of molecular ions with electrons
R. Johnsen (Pittsburg, PA, U.S.A.) 67

The tandem flowing afterglow-SIFT-drift
J.M. Van Doren, S.E. Barlow, C.H. DePuy and V.M. Bierbaum (Boulder, CO, U.S.A.) 85

Rate constants and product distributions as functions of temperature for the reaction of $OH^-(H_2O)_{0,1,2}$ with CH_3CN
P.M. Hierl, A.F. Ahrens, M. Henchman, A.A. Viggiano and J.F. Paulson (Hanscom AFB, MA, U.S.A.) 101

Selected-ion flow tube studies of reactions of C_2N^+ ions derived from cyanogen by electron ionization
D.K. Bohme, S. Włodek, A.B. Raksit, H.I. Schiff, G.I. Mackay and K.J. Keskinen (Downsview, Ont., Canada) 123

Formation of carbene radical anions: gas-phase reaction of the atomic oxygen anion with organic neutrals
J.J. Grabowski and S.J. Melly (Cambridge, MA, U.S.A.) 147

Structures and heats of formation of $C_4H_7^+$ ions in the gas phase
S.G. Lias and P. Ausloos (Gaithersburg, MD, U.S.A.) 165

A flowing afterglow-triple quadrupole study of the mechanisms and intermediates in the gas-phase reactions of $CH_3OH_2^+$ with CH_3OH
S.T. Graul and R.R. Squires (West Lafayette, IN, U.S.A.) 183

The gas-phase ion chemistry of methyl and ethyl borates
R.L. Hettich, T. Cole and B.S. Freiser (West Lafayette, IN, U.S.A.) 203

On the structure of the $C_2H_4O_2$ neutrals (acetic acid versus 1,1-dihydroxyethene) generated from ionized *n*-hexanoic acid and *n*-butyl acetate in the gas phase. Implications for the mechanism of the McLafferty rearrangement
B.L.M. van Baar, J.K. Terlouw (Utrecht, The Netherlands), S. Akkök, W. Zummack and H. Schwarz (Berlin, F.R.G.) 217

Gas-phase reactions of sulfides, mercaptans, and dimethyl methylphosphonate with ionic species derived from argon and water
R. Passarella, R.J. Shul, R.G. Keesee and A.W. Castleman, Jr. (University Park, PA, U.S.A.) . 227

SIFDT studies of the reactions of N_4^+ ions with H_2, D_2, and Ar
M. Tichý, N.D. Twiddy, D.P. Wareing (Aberystwyth, Gt. Britain), N.G. Adams and D. Smith (Birmingham, Gt. Britain) 235

Association reactions at low pressure. I. Collision-stabilized association below 1 micron
M.J. McEwan, A.B. Denison, V.G. Anicich and W.T. Huntress, Jr. (Pasadena, CA, U.S.A.) .. 247
Ion/molecule association reactions: Cl^- addition to SiF_4 in He and N_2
L.M. Babcock, W.S. Taylor and C.R. Herd (Baton Rouge, LA, U.S.A.) 259
SIFDT studies of some CH_3^+ ternary association reactions
N.G. Adams and D. Smith (Birmingham, Gt. Britain) 273

Author Index for Volumes 80 and 81 289

Subject Index for Volumes 80 and 81 290